



US005210660A

United States Patent [19] Hetzler

[11] Patent Number: 5,210,660

[45] Date of Patent: May 11, 1993

[54] SECTORED SERVO INDEPENDENT OF DATA ARCHITECTURE

[75] Inventor: Steven R. Hetzler, Sunnyvale, Calif.

[73] Assignee: International Business Machines
Corporation, Armonk, N.Y.

[21] Appl. No.: 466,194

[22] Filed: Jan. 17, 1990

[51] Int. Cl.⁵ G11B 5/012[52] U.S. Cl. 360/51; 360/77.08;
360/48; 369/47[58] Field of Search 369/47, 48, 49, 58,
369/32, 44.34, 44.25, 44.26, 109, 111, 275.1,
275.2, 275.3, 275.4, 124; 360/77.08, 77.11,
77.06, 77.02, 135, 40, 53, 48, 47, 51, 72.2

[56] References Cited

U.S. PATENT DOCUMENTS

4,016,603	4/1977	Ottesen	360/72.2
4,135,217	1/1979	Jacques et al.	360/77
4,630,140	12/1986	Sugimura et al.	360/47
4,823,212	4/1989	Knowles et al.	360/77.08
4,841,498	6/1989	Sugimura et al.	360/53
4,933,786	6/1990	Wilson	360/78.14

FOREIGN PATENT DOCUMENTS

0278006	7/1987	European Pat. Off.	
1-19567(A)	1/1989	Japan	360/77.08

OTHER PUBLICATIONS

"Servo Zones Embedded In Data Tracks Solve Old,

But Create New Problems." Brett Smith, Spring 1988,
pp. 45, 46 and 48.*Primary Examiner*—Aristotelis Psitos*Assistant Examiner*—Muhammad Edun*Attorney, Agent, or Firm*—Henry E. Otto, Jr.; Thomas
R. Berthold

[57] ABSTRACT

A data recording apparatus, such as a disk drive or tape drive is described wherein servo sectors written on a disk (or servo sections written on a tape) are equally spaced on a given track and read during seek, settle and track following operations. An algorithm is used to determine the allowable time separation between servo sectors (or sections) on a track and lengths of associated data sections, such as data sectors or variable length records, that may be accommodated on the disk or tape in such manner that each of the servo sectors (or sections) equally spaced on a given track is located within a data field of a data sector or within an identification region or immediately after an address indicating mark (such as address mark or index mark). The rate at which the servo sector (or section) is sampled is constant and independent of the number and lengths of the data sections. As a result of this independent relationship, this technique is suitable for CLD recording, to banded disks using sector servo as in conventional FBA, and also even to non-sector architectures, such as count-key-data (CKD), wherein the data is written in records of variable length, and to tape drives formatted in FBA or CKD.

14 Claims, 3 Drawing Sheets

